

ABSTRACT OF THE DISCLOSURE

**POLISHING APPARATUS AND METHODS HAVING HIGH
PROCESSING WORKLOAD FOR CONTROLLING POLISHING
PRESSURE APPLIED BY POLISHING HEAD**

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CMP systems and methods implement instructions for moving a polishing pad relative to a wafer and a retainer ring and for applying pressure for CMP operations.

Feedback of polishing pad position is coordinated with determinations of desired inputs of variable forces by which changing areas of the wafer, a pad conditioning puck, and the

10 retainer ring are separately urged into contact with the polishing pad so that the pressure on each such area is separately controlled. Processing workload is evaluated according to criteria related to the characteristics of the instructions. If none of the criteria is exceeded, a central CMP processor is used for the processing. If any of the criteria is exceeded, the force determinations are made separately from the central CMP processor by a force
15 controller, and the central processor manages data transfer to the force controller.